



DEPARTMENT OF THE AIR FORCE
DETACHMENT 3, USAF SCHOOL OF AEROSPACE MEDICINE (AFMC)
KADENA AIR BASE JAPAN

13 August 2009

MEMORANDUM FOR 3 AMDS/SGPB
10449 Luke Avenue
Elmendorf, AK 99506

FROM: Det 3, USAFSAM/CDR
Unit 5213, Box 10
APO AP 96368-5213

SUBJECT: Consultative Letter (CL), AFRL-SA-BR-CL-2009-0068, Generally Licensed
Devices (GLD) Program Review, Elmendorf AFB, AK

1. At the request of your office, Detachment 3, United States Air Force School of Aerospace Medicine (Det 3, USAFSAM) personnel completed a radiation safety audit of the GLD program. There are eleven GLDs on base and all devices contain radioisotope nickel-63 (Ni-63).

2. Scope: The purpose of this audit was to verify that program requirements were being met IAW Air Force policy and Title 10 of the Code of Federal Regulations.

3. References:

- a. AFI 40-201, *Managing Radioactive Materials in the Air Force*, 13 Apr 07
- b. IOH-SD-BR-SR-2005-004, *Bioenvironmental Engineer's Guide to Ionizing Radiation*
- c. 10 CFR Part 31, *General Domestic Licenses for Byproduct Material*

4. Findings/Recommendations:

4.1. 732 AMS/PAX. 732 AMS/PAX operates three Ion Track Inc. vapor tracers, model Vapor Tracer II, which are used to detect explosives and narcotics. Each device contains 10 millicuries (mCi) of Ni-63.

4.1.1. Inventories. IAW the requirements of AFI 40-201, 3.6.2.3, inventories have been completed on a six month cycle.

4.1.2. Swipes. IAW the requirements of 10 CFR 31.5 (c)(2), swipes/wipes used to assess for removable contamination have been completed on a six month cycle. However, swipes completed May 09 were only analyzed with an ADM-300. Due to the low kinetic energy of the beta particle, max energy of 66 keV/average energy of 17 keV, emitted from Ni-63, the ADM-300/BP-100 beta probe cannot detect the particle emissions from Ni-63, a pure-beta emitter. IAW 10 AFI 40-201 A3.3.3, detection equipment must have a minimal detectable activity

(MDA) of 0.005 microcuries. Therefore swipes for leak testing of sealed sources, especially Ni-63, have to be sent to USAFSAM/OEHHL of Brooks City-Base for official analysis. For more guidance, see *Bioenvironmental Engineer's Guide to Ionizing Radiation*, section 15.c, "leak Test Analysis, Swipe Samples, and Air Filters".

4.1.3. Document retention. IAW 10 CFR Part 31.5 para. (c)(4) and (c)(4)(i), official swipe results must be retained, and retained for a minimum of three years. Year 2008 swipes have been completed, but the results have not been annotated in the tracking logs. Contact USAFSAM/OEHHL to obtain swipe results. Add results to GLD program binder.

4.2. CS/Base Info Transfer Center (BITC). BITC operates a Barringer model Ionscan 400B unit that contains 15 mCi of Ni-63. This device is used for trace explosives and narcotics detection.

4.2.1. IAW the requirements of AFI 40-201, 3.6.2.3, inventory of the BITC GLD has been completed on a six month basis.

4.2.2. IAW the requirements of 10 CFR 31.5 (c)(2), swipes have been completed on a six month cycle. Obtain Sep 08 swipe results from USAFSAM/OEHHL. Insert results into program binder.

4.3. 3 SFS/SFTR. Security Forces operates three Ionscan 400B devices.

4.3.1. IAW the requirements of AFI 40-201, 3.6.2.3, inventories of the three devices have been completed at 6 month intervals.

4.3.2. IAW the requirements of 10 CFR 31.5 (c)(2), swipes have been completed on a six month cycle. Obtain Sep 08 swipe results from USAFSAM/OEHHL. Insert results into program binder.

4.4. CES/CEX. Readiness personnel operate two Smith's APD-2000 units. Each device contains 10 mCi of Ni-63.

4.4.1 . The inventory for this shop has numerous discrepancies and is hard to follow. Inventories have not been completed on a six month cycle IAW the requirements of AFI 40-201, 3.6.2.3, but at 5 and 7 months (Feb & Jul) intervals.

4.4.2. IAW the requirements of 10 CFR 31.5 (c)(2), swipes were completed Feb 09. The results need to be obtained from USAFSAM/OEHHL and inserted into the GLD program binder.

4.5. CES/CEF. Fire personnel operate two Smith's APD 200 units.

4.5.1. There are no inventory records for this shop IAW the requirements of AFI 40-201.

4.5.2. IAW the requirements of 10 CFR 31.5 (c)(2), swipes were completed Feb 09. The results need to be obtained from USAFSAM/OEHHL and inserted into the GLD program binder..

4.6. Radiation Safety Officer.

4.6.1. Swipes for sealed source leak tests must be sent to USAFSAM/OEHHL. It is recommended that BEF inventory and swipe all eleven GLDs on the same six month cycle, per AFI 40-201 A3.3.2.

4.6.2. The inventory documents are hard to follow due to the way they are designed. Create a document for each period and list the items on hand only for that period. Include notes as needed.

4.6.3. Reaccomplish all 2009 swipes. Send swipes to USAFSAM/OEHHL for analysis.

5. We would like to thank all personnel involved for accommodating our survey schedule. If you have any questions, please contact me at DSN 315-634-2636, or by email at daniel.shaw@kadena.af.mil.



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Chief, Radiation Services

cc:
HQ PACAF/SGPB